YUJIN HAM

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RESEARCH INTERESTS

My research interests are in the areas of computer vision, with a focus on 3D scene understanding, including 3D reconstruction and human social behavior analysis in 3D environments.

EDUCATION

Rice University — Houston, TX, United States
Ph.D., Department of Electrical and Computer Engineering — Aug 2022 – Present
- Advisor: *Prof. Guha Balakrishnan*

Ewha Womans University — Seoul, South Korea
Master of Science, Department of Electronic and Electrical Engineering — Mar 2020 – Feb 2022
- Thesis advisor: *Prof. Je-Won Kang*
- Thesis title: Quality-adaptive Image Compression Artifact Removal using Deep Learning
- GPA: 4.23 / 4.30

Ewha Womans University — Seoul, South Korea
Bachelor of Science in Engineering, Department of Electronics Engineering — Mar 2016 – Feb 2020
- GPA: 3.54 / 4.30

PUBLICATIONS AND PRESENTATIONS

1. **Y. Ham**, M. Michalkiewicz, G. Balakrishnan, "DRAGON: Drone and Ground Gaussian Splatting for 3D Building Reconstruction", International Conference on Computational Photography (ICCP), 2024.
2. **Y. Ham**, C. Yoo, and J. Kang, "Training compression artifacts reduction network with domain adaptation", Applications of Digital Image Processing XLIV. Vol. 11842. International Society for Optics and Photonics, 2021.
3. (Kor.) **Y. Ham**, C. Yoo, J. Kang, "Compression Artifacts Invariant Training with Domain Adaptation", Korean Signal Processing Conference, 2021.
4. (Kor.) **Y. Ham**, J. Kang, "Mid-view Quantization Noise Removal of Multi-view Video using Convolutional Neural Network", The Korean Institute of Broadcast and Media Engineers, 2020.
5. (Kor.) N. Kim, **Y. Ham**, J. Kang, "Effective Video Captioning Algorithm Using Feature Attention Model", Image Processing and Image Understanding, 2020.

RESEARCH EXPERIENCES

Rice Vision and Imaging Group (RVIG) | *Advisor: Prof. Guha Balakrishnan* — Aug 2022 – Present
Research Assistant, Rice University
- keyworkds: Multi-elevation 3D Reconstruction, 3D Scene Understanding from Monocular Video

Information Coding and Processing Lab. (ICPL) | *Advisor: Prof. Je-Won Kang* — Mar 2020 – Feb 2022
Research Assistant, Ewha Womans University
- keyworkds: Compression Artifact Reduction, Image enhancement, DA, RL, Blind Image Qualiaty Assessment (BIQA)

Undergraduate Research Assistant, Ewha Womans University — Dec 2018 – Feb 2019
- Subject: Photos classifying Application by exploiting Histogram of Oriented Gradients (HOG)

Multi-agent Communications and Networking Lab. (MCNL) | *Advisor: Prof. Hyung-Gon Park* — Jun 2018 – Aug 2018
Undergraduate Research Assistant, Ewha Womans University
- Subject: Convolutonal Neural Network (CNN) based classifier and SVM-based classifier performance comparison

PROJECTS

Walk-through Rendering from Images of Varying Altitude (WRIVA) Dec 2022 – Present
Intelligence Advanced Research Projects Activity (IARPA)
- Keywords: Multi-elevation 3D reconstruction, Large scene 3D reconstruction
- Improved reconstruction quality by introducing perceptual regularizer using DreamSim

Compression and Transmission Technologies for Ultra High Quality Immersive Videos Supporting 6DoF Mar 2020 – Dec 2020
Institute of Information & Communications Technology Planning & Evaluation (IITP) *Daejeon, South Korea*
- Keywords: DL-based image denoising, 6DoF data, Quantization noise removal

A Convolutional Neural Network based Classification System for Educational Learning States using Pupil Sizes Mar 2018 – Dec 2018
Korea Center for Women in Science, Engineering, and Technology (WISET) *Seoul, South Korea*
- Keywords: Machine Learning (ML), Biomedical data classification

TEACHING EXPERIENCES

SWITCH Graduate Mentor | *Rice University*
Summer Web-Based Institute for Technologies in CompSci and Healthcare (SWITCH) Summer 2024
- Instructor: Prof. Guha Balakrishnan

Teaching Assistant
ELEC 542: Neural methods for image synthesis (Rice University) Fall 2023
- Instructor: Prof. Guha Balakrishnan

30266-01: Digital Engineering (Ewha Womans University) Spring 2021
- Instructor: Prof. Su-Hyun Park

35477-01: Random Process (Ewha Womans University) Fall 2020
- Instructor: Prof. Nak-Myeong Kim

Undergraduate Peer Instructor | *Ewha Womans University* Spring 2018 / Fall 2019
Instructor: Prof. Hye-Sook Lim *(Digital Engineering)* / Prof. Hyung-Gon Park *(Random Process)*

HONORS AND AWARDS

SWITCH Mentor Scholarship | *Rice University* 2024
ICCP 2024 Student Travel Award | *US National Science Foundation (NSF) & Swiss NSF* 2024
Rice University Department of Electrical and Computer Engineering Fellowship | *Rice University* 2022
Grace Hopper Celebration (GHC) Scholarship 2021 | *AnitaB.org & Association for Computing Machinery (ACM)* 2021
Admission Scholarship for Outstanding Scientists (full tuition for one year) | *Ewha Womans University* 2020
Student Portfolio Award (1st prize) | *Accrediation Board for Engineering Education of Korea (ABEEK)* 2019
Ewha Career Design Scholarship (Merit-based) | *Ewha Womans University* 2019
Dean's List | *Ewha Womans University* Sping / Fall 2019
Engineering Leadership Scholarship (Merit-based) | *Ewha Womans University* 2018, 2019
Peer Instructor Scholarship (Merit-based) | *Ewha Womans University* Spring 2018, Fall 2019
Global Frontier Travel Grant (Visiting the US for 2 weeks) | *Ewha Womans University* 2018

SKILLS

Languages: English(fluent), Korean(native)
Programming: Python, C/C++, LaTeX, VHDL/Verilog(basic), ARM Assembly(basic), OrCAD (with PSPICE)
ML/DL Frameworks: PyTorch, TensorFlow, MATLAB
OS/Environments: Linux, Mac, Windows, Anaconda, Docker